



Material Safety Data Sheet

The Dow Chemical Company
Midland, Michigan 48674

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

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24-Hour Emergency Phone Number: 989-636-4400

Product: SUPER TUFF-R* 0.75 INCH INSULATION SHEATHING

Product Code: 11400

Effective Date: 05/02/03 Date Printed: 01/27/04 MSD: 007470

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Modified polyisocyanurate rigid cellular polymer		>60%
Aluminum	CAS# 007429-90-5	<15%
Tris(2-chloroisopropyl)phosphate	CAS# 013674-84-5	<5%
Cellulose		
Continuous filament glass fiber		
May contain either:		
Proprietary hydrocarbon blowing agents		<8%
1,1-dichloro-1-fluoroethane	CAS# 001717-00-6	<15%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

* Tan to brown foam. Odorless. No significant immediate hazards *
* for emergency response are known. *

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: Solid or dust may cause irritation or corneal injury due to mechanical action. Elevated temperatures may generate vapor levels sufficient to cause eye irritation. Effects may include discomfort and redness.

SKIN: May cause itching. May cause skin irritation due to mechanical abrasion. No adverse effects anticipated by skin absorption.

INGESTION: Swallowing is unlikely because of the physical state. May cause choking if swallowed.

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INHALATION: Dusts or fibers generated in processing may cause irritation of the upper respiratory tract (nose and throat). Dust or fume generated by welding, burning, melting, cutting, brazing, grinding and possibly machining, etc., may cause respiratory irritation and other effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. For 1,1-dichloro-1-fluoroethane (HCFC 141b): may cause central nervous system effects. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Concentrations of the blowing agent(s) anticipated incidental to proper industrial handling are not expected to cause acute inhalation effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Repeated exposures to dusts of this material are not anticipated to result in systemic toxicity or permanent lung injury; however, excessive exposures may cause less severe respiratory effects. Repeated exposure to particles generated by grinding fiberglass-reinforced materials may result in implantation of particles in the skin. In laboratory animals, repeated inhalation exposure to 8000 ppm dichlorofluoroethane produced no adverse effects; higher concentrations produced only minor biochemical changes such as an increase in cholesterol. Other additives are encapsulated in the product and are not expected to be released under normal processing conditions.

CANCER INFORMATION: Direct administration (injection) of polyurethane dust into lungs of rats resulted in benign tumors; this route of administration delivers large particles to the lungs and is not relevant to industrial exposure. The fiberglass in this product is continuous filament fiberglass. Based on available data, IARC concluded that there is inadequate evidence of carcinogenicity in laboratory animals and in humans for continuous filament fiberglass. Benign testicular tumors were observed in rats exposed to high concentrations (5000 ppm or higher) of dichlorofluoroethane for 2 years; no tumors were observed at 1500 ppm. The significance of these findings is considered equivocal.

TERATOLOGY (BIRTH DEFECTS): Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother. The component(s) is/are 1,1-dichloro-1-fluoroethane.

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REPRODUCTIVE EFFECTS: In a 2-generation reproduction study, no reproductive effects were observed in rats exposed to 8000 ppm dichlorofluoroethane. Slight effects were observed in rats exposed to 20,000 ppm. Effects included minimal decreases in the number of litters and in litter size, and delayed sexual maturation of male offspring believed to be secondary to the slower growth rate of the animals.

4. FIRST AID

EYE: Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Wash skin with plenty of water.

INGESTION: If swallowed, seek medical attention. May cause gastrointestinal blockage. Do not give laxatives. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES**FLAMMABLE PROPERTIES**

FLASH POINT: Not applicable

METHOD USED: Not applicable

AUTOIGNITION TEMPERATURE: Not applicable

FLAMMABILITY LIMITS

LFL: Not applicable

UFL: Not applicable

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. In

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smoldering or flaming conditions, carbon monoxide, carbon dioxide and carbon are generated. Combustion products may include trace amounts of: hydrogen cyanide, hydrocarbons.

OTHER FLAMMABILITY INFORMATION: Mechanical cutting, grinding or sawing can cause formation of dusts. To reduce the potential for dust explosion, do not permit dust to accumulate. Dense smoke is emitted when burned without sufficient oxygen.

EXTINGUISHING MEDIA: Water, dry chemical fire extinguishers and carbon dioxide fire extinguishers.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls/Personal Protection.

PROTECT THE ENVIRONMENT: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

CLEANUP: Sweep up. Use explosion proof vacuum to clean up dust generated during fabrication. Collect in suitable and properly labeled containers. See Section 7, Handling and Storage for additional information. See Section 13, Disposal Considerations for additional information.

7. HANDLING AND STORAGE

HANDLING: This product is combustible and may constitute a fire hazard if improperly used or installed. When installed, this

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product should be adequately protected as directed by national building regulations or instructions in the specific application brochure. No smoking, open flames or sources of ignition in handling or storage area.

Mechanical handling equipment can cause formation of dusts. Maintain good housekeeping. Layers of flammable dusts should not be permitted to accumulate. Keep dust away from ignition sources. Provide adequate local ventilation and appropriate dust handling systems.

Fabrication methods which involve cutting into the product may release blowing agent remaining in the cells. Provide adequate ventilation to assure localised concentrations in release areas are maintained below the lower flammability limit. See Section 8, Exposure Controls/Personal Protection.

STORAGE: Store in cool, well ventilated area away from sources of ignition. Maintain good housekeeping to minimize dust accumulation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

SKIN PROTECTION: Wear clean, long-sleeved, body-covering clothing. Use gloves chemically resistant to this material.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. If respiratory irritation is experienced, use an approved air-purifying respirator.

EXPOSURE GUIDELINES: 1,1-Dichloro-1-fluoroethane: AIHA WEEL is 500 ppm.

Fiber glass: ACGIH has two guidelines for continuous filament glass fibers: 1 fiber/cc for fibers longer than 5 um with an

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aspect ratio greater than 3:1, and 5 mg/m³ for the inhalable fraction. Dow IHG is 1 fiber/cc.

Aluminum: ACGIH TLV is 10 mg/m³; OSHA PEL is 15 mg/m³ total, 5 mg/m³ respirable, as Al, for the metal. ACGIH TLV is 5 mg/m³ for fumes, 2 mg/m³ for alkyls and soluble salts.

Contains proprietary ingredient for which the exposure guideline has been omitted.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Tan to brown foam

ODOR: Odorless

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

BOILING POINT: Not applicable

SOLUBILITY IN WATER: Not applicable

SPECIFIC GRAVITY: 1.75

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Thermally stable at typical use temperatures.

CONDITIONS TO AVOID: Avoid temperatures above 260C (500F).

Exposure to elevated temperatures can cause product to decompose.

INCOMPATIBILITY WITH OTHER MATERIALS: Avoid contact with oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

MUTAGENICITY: For fiberglass: in vitro mutagenicity studies were inconclusive. For 1,1-dichloro-1-fluoroethane: in vitro mutagenicity studies were negative in some cases and positive in other cases. Animal mutagenicity studies were negative. The weight of evidence from a battery of mutagenicity studies

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suggests that dichlorofluoroethane has a very low potential to affect genetic material.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)**ENVIRONMENTAL FATE**

MOVEMENT & PARTITIONING: No bioconcentration is expected because of the relatively high molecular weight (MW >1000). In the terrestrial environment, material is expected to remain in the soil. In the aquatic environment, material is expected to float.

DEGRADATION & PERSISTENCE: Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected. Based largely or completely on information for blowing agent: dichlorofluoroethane (HCFC 141b) has a stratospheric ozone depletion potential of 0.11, relative to CFC 12 (ODP=1).

ECOTOXICITY: Not expected to be acutely toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE DOW CHEMICAL COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/Information On Ingredients).

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted incinerator or other thermal destruction device, or landfill.

As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums.

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Telephone Dow's Customers Information Center at
800-258-2436 or 989-832-1556 for further details.

14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.): This product is not regulated by D.O.T. when shipped domestically by land.

CANADIAN TDG INFORMATION: This product is not regulated by TDG when shipped domestically by land.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS
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SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
1,1-DICHLORO-1-FLUOROETHANE	001717-00-6	<15 %
ALUMINUM (FUME OR DUST)	007429-90-5	<15 %

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category

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REGULATORY INFORMATION (CONTINUED)

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
PROPRIETARY INGREDIENT	PROPRIETARY	NJ2 NJ1 NJ3 PA1
1,1-DICHLORO-1-FLUOROETHANE	001717-00-6	NJ2
ALUMINUM (FUME OR DUST)	007429-90-5	NJ2 PA3 NJ3 PA1

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).

NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS

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REGULATORY INFORMATION (CONTINUED)

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

This product is exempt under WHMIS.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All substances in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. OTHER INFORMATION

MSDS STATUS: Revised Section 2.

OTHER: For further information, contact the Plastics Customer Information Group at 1-866-583-BLUE (2583).

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The Information Herein Is Given In Good Faith, But No Warranty,
Express Or Implied, Is Made. Consult The Dow Chemical Company
For Further Information.